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CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA, CALIFORNIA 91109

DIVISION OF BIOLOGY

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Dr. Joshua Lederberg
Stanford

Dear Josh:

I did not want to raise the issue at the time, but I was surprised to hear you say at JPL last Saturday that not much work had been done on the growth of microorganisms on frozen media. Actually, quite a bit of work on this subject has been carried out by food technologists, and I think you will find the results interesting. A good review of the field is that by Scott, *Advances in Food Research* 7: 83-127 (1957). You will see that Scott concludes that microorganisms grow only in liquid solutions. He makes the point that the eutectic temperature of foods is well below -30°C . So-called frozen foods are therefore never completely frozen, *as usually stored*. You may want to look into this before the colloquium proceedings are published.

There is to be an important meeting at TRW this Friday to make decisions regarding the thermal environment of the biology package. I intend to press for as low a temperature as possible-- 0°C rather than the 15°C agreed on before the decision was made to land mission B at a high latitude. I would be glad to go even lower if I thought there was a chance it would be acceptable to the wet experimenters. I hope I will have your support if it should turn out to be necessary to poll the team.

Yours,



N. H. Horowitz